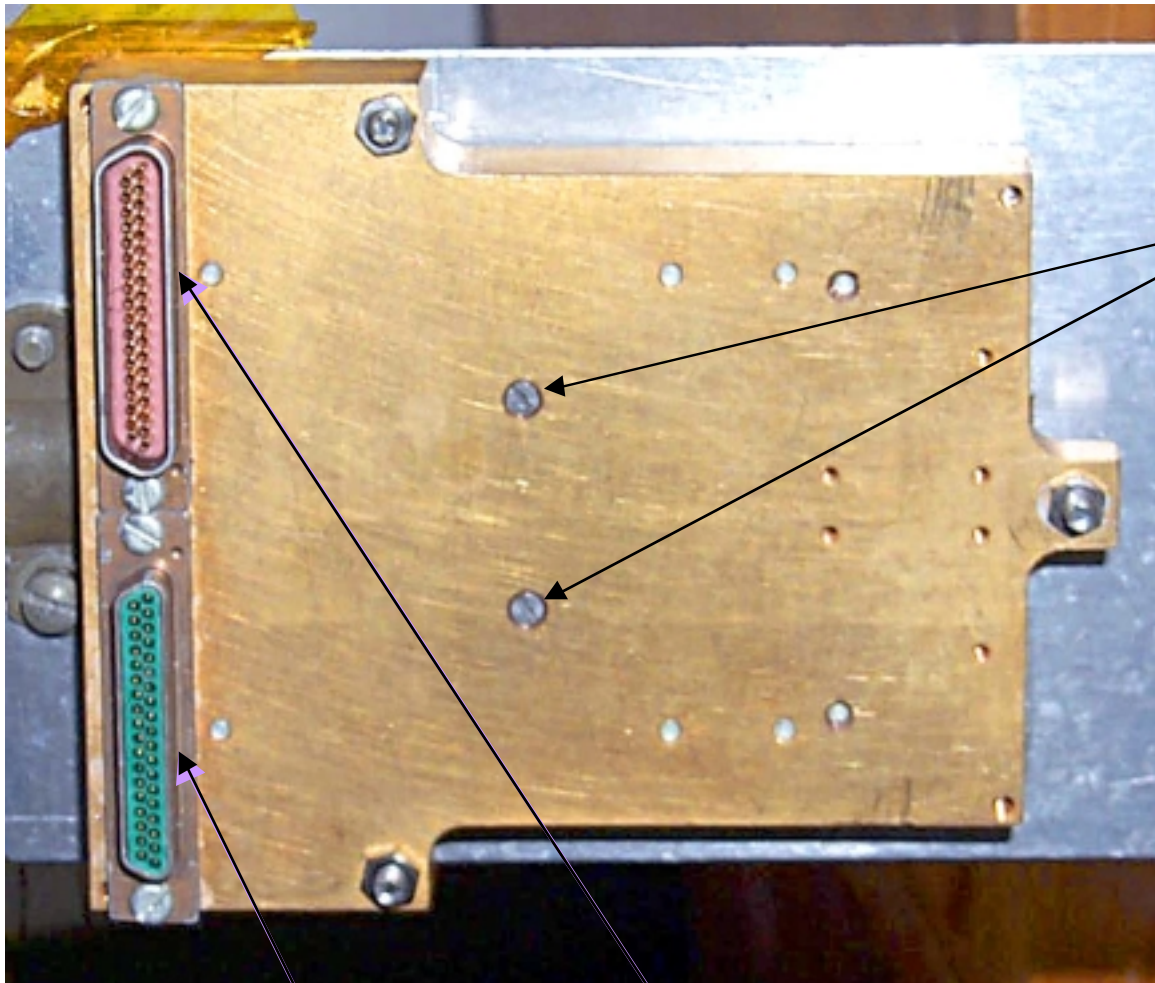


Connectors used in FIBRE Detector Package:

Detector package has μ D37 PSB and LSB. Viewed from underneath, the package looks like this:



SQUIDS are behind these screws (Betty only)

“Fast” Connector: MDM-37PSB (male) “Slow” Connector: MDM-37SSB (female)

Overview:

“FIBRE Detector Package” is the generic name given to the detector test packages designed to be compatible with the FIBRE 16-element spectrometer. These packages can be used in a variety of test setups and are made to use two 1x8 SQUID Multiplexers to read out 16 detectors. These packages can also be rewired for special functions, such as T_C checks. As of this writing, three packages have been made: “Alvin”, “Betty”, and “Chas”. Chas is being wired for T_C checks. Betty is the prototype package, and has no optical window (i.e., it is dark) and does not have a removable chip carrier. This document serves to detail the wiring definition of these packages.

Function	Fast	Slow
2x8 Bias Signals		16
2x8 Bias Returns		16
2 SA Mods		4
2 SA Outs - coaxes	2	
2 Mux Mods - coaxes	2	
9 Addresses - coaxes	9	
<u>Mux Gnd - coax</u>	<u>1</u>	
“Slow”		36
“Fast”	14	

The principle: two cables lead from the Breakout Board to the Detector Box. One carries only fast signals, the other only slow. Each has a 37-pin μ D connector on each end, the fast being SSB (cable ends) and the slow being PSB (cable ends). As long as the 300K-4K harness is in place, the 4K-300mK cables will be placed correctly.

Wiring the FIBRE Detector Package:

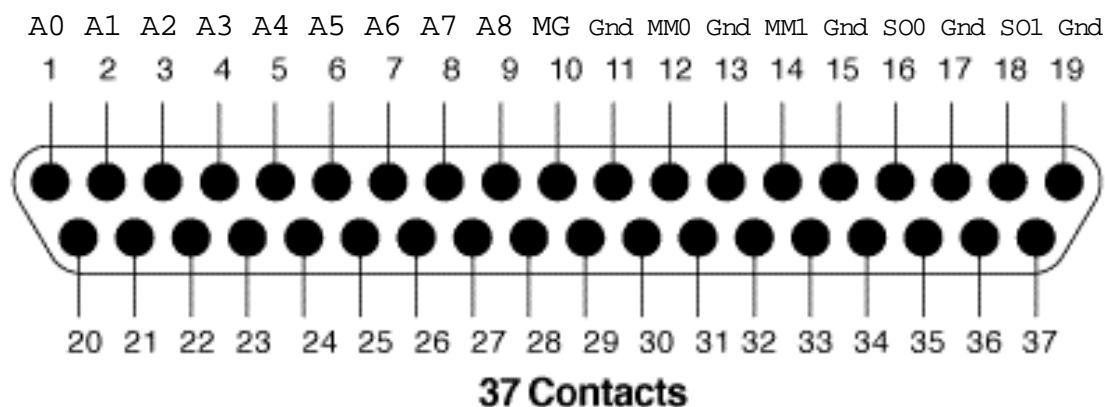
The FIBRE Detector Package must be wired up according to the functions laid out on each half of the board. For convention, when the FIBRE Squid Board is oriented so you can read the writing on it, the **Left side is C0** and the **Right side is C1**. As of this writing, one board (“Chas”) will be wired to perform T_C checks only, so will have limited functionality wired into it.

The internal wiring must cross itself somewhat. In order to keep crosstalk to a minimum, I suggest routing the wiring inside the Detector Package by varnishing the wires to the board or to the box wall to keep the separate function isolated as much as possible.

Inside the box, wires should be 0.005” or 0.003” NbTi wire with copper cladding. Outside the box, cables should be made of 0.005” or 0.003” NbTi wire with CuNi cladding. Twisted pairs should be used whenever possible. After assembly, pot each end of cables in GE varnish for strain relief. Bundle cables every 2” with waxed dental floss to prevent wire separation and tangling.

“Fast” Lines

Function	Breakout (μ D-37 PSB)	Cable, “Fast” (μ D-37 SSB)	Detector Package (μ D-37 PSB)	Board (use Cu clad!)
Mux Mod 0	12 / 31	12 / 31	12 / 31	Left = C0
SA Out 0	16 / 35	16 / 35	16 / 35	Left
Mux Mod 1	14 / 33	14 / 33	14 / 33	Right = C1
SA Out 1	18 / 37	18 / 37	18 / 37	Right
A0 c0/c1	1 / 20	1 / 20	1 / 20	L/R
A1 c0/c1	2 / 21	2 / 21	2 / 21	L/R
A2 c0/c1	3 / 22	3 / 22	3 / 22	L/R
A3 c0/c1	4 / 23	4 / 23	4 / 23	L/R
A4 c0/c1	5 / 24	5 / 24	5 / 24	L/R
A5 c0/c1	6 / 25	6 / 25	6 / 25	L/R
A6 c0/c1	7 / 26	7 / 26	7 / 26	L/R
A7 c0/c1	8 / 27	8 / 27	8 / 27	L/R
A8 c0/c1	9 / 28	9 / 28	9 / 28	L/R
Mux Ground	10 / 29	10 / 29	10 / 29	L/R



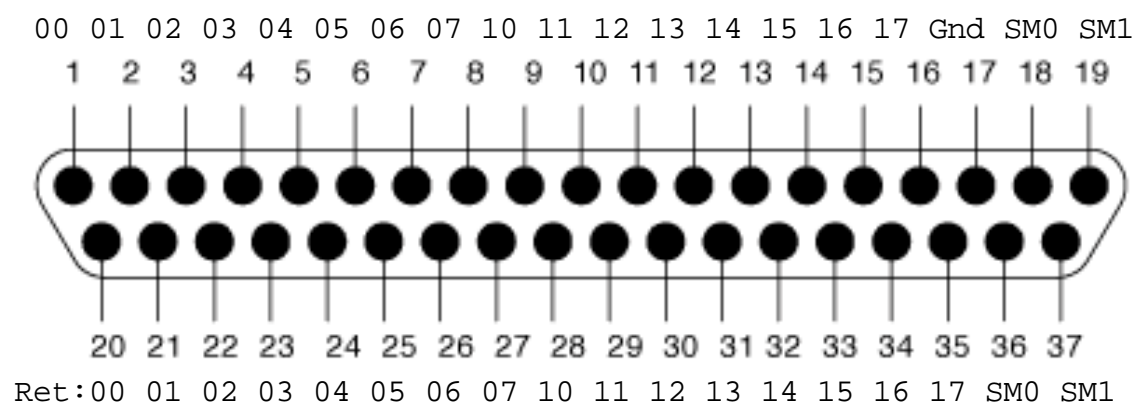
Connector:

(seen facing pins on male; e.g., Breakout Board or Detector Package connectors)

A0 A1 A2 A3 A4 A5 A6 A7 A8 MG Gnd MM0 Gnd MM1 Gnd SO0 Gnd SO1

“Slow” Lines

Function	Breakout (μ D-37 SSB)	Cable, “Slow” (μ D-37 PSB)	Detector Package (μ D-37 SSB)	Board (use Cu clad!)
Bias 00	1 / 20	1 / 20	1 / 20	Left = C0
01	2 / 21	2 / 21	2 / 21	L
02	3 / 22	3 / 22	3 / 22	L
03	4 / 23	4 / 23	4 / 23	L
04	5 / 24	5 / 24	5 / 24	L
05	6 / 25	6 / 25	6 / 25	L
06	7 / 26	7 / 26	7 / 26	L
07	8 / 27	8 / 27	8 / 27	L
10	9 / 28	9 / 28	9 / 28	Right = C1
11	10 / 29	10 / 29	10 / 29	R
12	11 / 30	11 / 30	11 / 30	R
13	12 / 31	12 / 31	12 / 31	R
14	13 / 32	13 / 32	13 / 32	R
15	14 / 33	14 / 33	14 / 33	R
16	15 / 34	15 / 34	15 / 34	R
17	16 / 35	16 / 35	16 / 35	R
SA Mod 0	18 / 36	18 / 36	18 / 36	Left
SA Mod 1	19 / 37	19 / 37	19 / 37	Right



Connector:

(seen facing pins on male; e.g., cable ends)